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BRIEFER ARTICLES

NEW COLORADO SPECIES OF CRATAEGUS

(WITH TWO FIGURES)

During the past three years the writer, together with Messrs. G. S. DODDS and W. W. ROBBINS, has been making ecological studies of mesa and gulch plants in the vicinity of Boulder, Colorado. In tracing out the distribution of *Crataegus* it became apparent that there were present some undescribed species. Full and complete collections were made therefore by Mr. DODDS and the writer during the present season from marked trees, in order that there could be no confusion in regard to the specimens. Very complete notes of abundance, occurrence in different drainage areas, etc., were made. Fruits were preserved in alcohol as well as by drying.

It was expected at the beginning of the study that the new forms would be found to be hybrids between previously described species. This, however, is not the case. The distribution of *C. Doddsii*, in particular, shows that it is a true species. Isolated thickets of *C. Doddsii* have been found as far as five or ten miles away from any trees of other species of *Crataegus*. Various other considerations which will be noted elsewhere lead to the belief that the Colorado species of *Crataegus* do not hybridize.

A paper by my colleague, Professor T. D. A. COCKERELL,¹ gives a full account of the species described for Colorado up to the present time. I am much indebted to this paper and to suggestions from its author.

The following species have the characters of TOMENTOSAE of SARGENT and should be placed in that group. The first might almost as well be placed with COCCINEAE.

Crataegus Doddsii, sp. nov.—*Arbor* parva, vel frutex; ramis cineraciis, spinescentibus; ramulis junioribus glabris vel paululum pubescentibus, colore castaneato. *Folia* lucida; glabrata, sed nerviis infra pubescentibus; obovata, saepe ad apicem truncata, margine serrata, et superne obscure lobata. *Petiolus* longe $\frac{1}{4}$ – $\frac{1}{2}$ laminae; superne margine angusta glandulosa. *Flores* conspicui; corymbis compositis; pedicellis glabris vel majus minusve pubescentibus; staminibus 10 vel minus; antheris albis. *Fructus* durus, cum pilis raris, late pyriformis; longe 9^{mm}, in longitudinem costatus;

¹ Univ. of Colorado Studies 5:41–45. Dec. 1907.

colore ruber sanguineusve; autumnno maturans; nucellis osseis, 2-3.—
Fig. 1.

Hab. in Colorado, U. S. A.

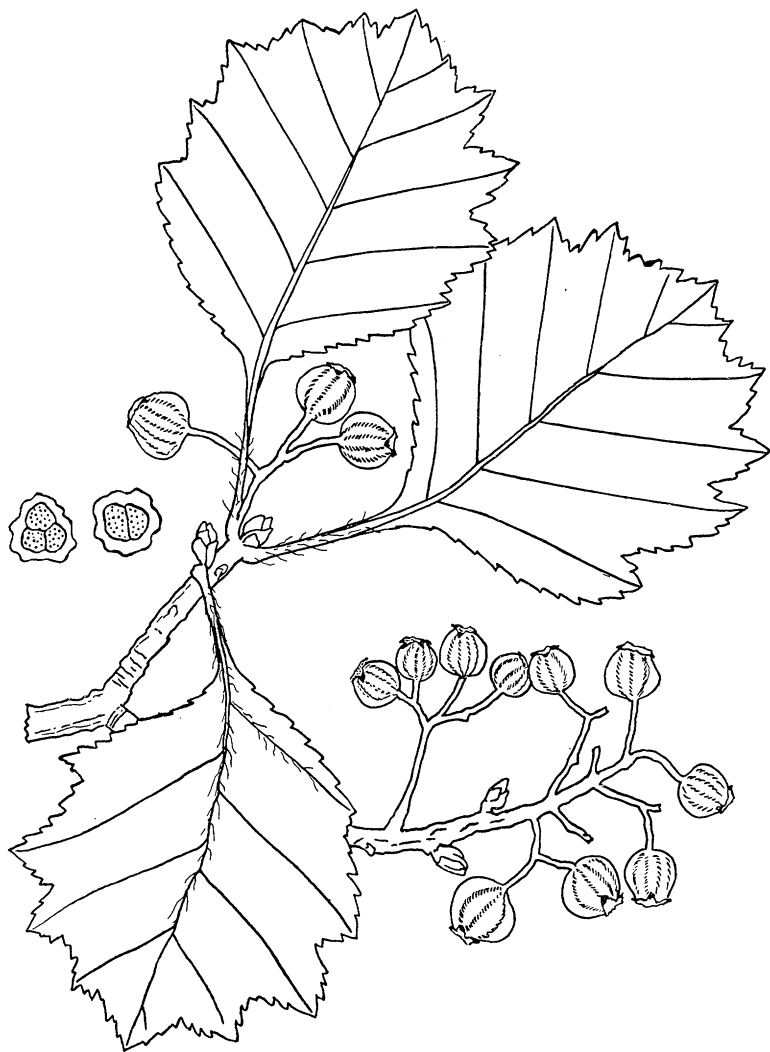


FIG. 1.—*Crataegus Doddsii*, natural size.

This species is nearest related to *C. erythropoda*, from which it differs in having the anthers white (not pink), in having less shiny leaves, in the presence of more

pronounced ridges in the fruit, and in the lighter color of the fruit (that of *C. erythropoda* is mahogany brown).

Type specimen: *Ramaley* and *Dodds* 6181, Pole Canyon near Boulder, Colorado, Sept. 19, 1908. Type in University of Colorado Herbarium; cotype



FIG. 2.—*Crataegus coloradoides*, natural size.

in Rocky Mountain Herbarium, Laramie, Wyoming. Material is at hand from various localities in Boulder County, 5000–8000^{ft} altitude.

***Crataegus coloradoides*, sp. nov.**—*Arbor* parva, vel frutex: ramulis junioribus pubescentibus; ramis spinescentibus. *Folia* supra cyaneovirida, lucidula, infra glauca; obovata; margine serrata et parve lobata;

nerviis infra pubescentibus. *Petiolus* pubescens, longe $\frac{1}{3}$ – $\frac{1}{2}$ laminae. *Flores* conspicui; corymbis compositis; pedicellis pubescentibus; staminibus 10 vel minus; antheris albis. *Fructus* autumnis maturans; mollis, dulcis, ruber vel puniceus, globosus (9^{mm}), levis non costatus, cum pilis raris; nucellis osseis, 2–3.—*Fig. 2*.

Hab. in Colorado, U. S. A.

This species is nearest to *C. occidentalis* Britt., but has much longer petioles, smaller, shiny leaves, not dull, somewhat smaller fruit, which is globose, not broader than long as in *C. occidentalis*. The tree is also less gnarled and there are no persistent bud-scales at flowering time.

Type specimen: *Ramaley* and *Dodds* 6184, Pole Canyon near Boulder, Colorado, Sept. 19, 1908. Type in University of Colorado Herbarium; cotype in Rocky Mountain Herbarium at Laramie, Wyoming.

The species grows in gulches in the lower foothills from 5500 to 7000^{ft} altitude; mostly about 6000^{ft}.

It may be of interest to students of *Crataegus* to point out that the fluting of the fruits, as in *C. Doddsii*, is a character which has apparently not been used by other observers. In alcoholic material and in well-dried specimens this character is very noticeable. Attention is called to the cross-section of the fruit shown in the drawing (*fig. 1*).—FRANCIS RAMALEY, *University of Colorado, Boulder, Colorado*.

SEXUAL CONDITION IN FEGATELLA

Until the last few years, nothing has been known in regard to the sexual differentiation in the sporophytic stage of dioecious bryophytes. In connection with a discussion of the germination of the zygotes of certain dioecious molds, the writer¹ first pointed out this lack of knowledge on the subject and raised the question whether a capsule of a dioecious bryophyte contains both male and female spores or spores of but a single sex. The question so far has been settled by the writer² for the single hepatic *Marchantia polymorpha*, and by the MARCHALS³ for the three mosses *Barbula unguiculata*, *Bryum argenteum*, and *Ceratodon purpureus*. In all these forms, as well as in the germinating mold *Phycomyces*, a single sporangium was found to contain both male and female spores as judged by the thalli they produced when sown in pure cultures.

The purpose of the present brief notice is to add the dioecious hepatic

¹ Zygospore germinations in the Mucorineae. *Annales Mycologici* 4:25. 1906.

² Differentiation of sex in thallus, gametophyte, and sporophyte. *BOT. GAZETTE* 42:161–178. 1906.

³ Recherches expérimentales sur la sexualité des spores chez les Mousses dioïques. *Mém. couronnés Cl. Sc. Ac. Roy. Belgique* 21:1–50. 1906.